

REMARKS

Claims 1-6, 8-25, 27-44 and 46-62 are currently pending in the present application. No amendment to the claims has been made.

Reconsideration and allowance based on the following remarks are requested.

Claims 1-6, 8-13, 15-25, 27-32, 34-38 and 58-62 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0136334 to Dierichs et al. ("Dierichs") in view of U.S. Patent No. 6,583,068 to Yan et al. ("Yan") and further in view of U.S. Patent Application Publication No. 2003/0147058 to Murakami et al. ("Murakami"). Applicant traverses this rejection for at least the following reasons.

As an initial matter, Dierichs only qualifies as prior art under 35 U.S.C. §102(e). Applicants respectfully submit that under 35 U.S.C. §103(c), Dierichs cannot be used as prior art, because at the time the invention was made, the subject matter of Dierichs and the present claimed invention were commonly owned by ASML Netherlands B.V. (*See*, 35 U.S.C. §103(c) and MPEP §2146.) Moreover, Applicant and Dierichs et al. were under an obligation to assign their respective applications to ASML Netherlands, B.V. The instant application is assigned to ASML Netherlands B.V. by way of assignment filed August 13, 2004, and recorded at reel 015681, frame 0071. A copy of the Notice of Recordation for the present application is enclosed for the Examiner's information.

Moreover, even assuming, *arguendo*, that Dierichs is available as prior art, Applicant submits that the combination of Dierichs, Yan, and Murakami does not render the claims obvious. As admitted by the Office Action, the cited portions of Dierichs fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*, an aluminium absorber layer with a protective top coating as recited in claim 1. Similarly, the cited portions of Dierichs, as admitted by the Office Action, fail to disclose, teach or suggest a device manufacturing method comprising, *inter alia*, minimizing formation of aberrations in the patterned beam by using a patterning structure having an aluminium absorber layer with a protective top coating having a thickness of about 0.1 to about 5 nm, as recited in claim 20.

Further, as admitted by the Office Action, the cited portions of Yan fail to disclose, teach or suggest an aluminium absorber layer with a protective top coating having a thickness of about 0.1 to about 5 nm.

More, Applicant submits that the cited portions of Murakami do not overcome the shortcomings of Dierichs and Yan. Applicant respectfully submits that the top layer 1500 of

Yan and the protective coating 1 of Murakami are for fundamentally different purposes. For example, Murakami discloses that “[t]he protective layer exhibits reflective behavior in the same manner as a first layer, and *thus imparts no reflectivity decrease to the optical element* compared to otherwise similar optical elements that lack a protective layer.” Paragraph [0022] of Murakami (emphasis added). This is in complete contradiction of Yan, which discloses that the top layer is designed to have a higher absorbance and/or *lower reflectivity than the absorber layer*. See col. 3, lines 27-32 of Yan (emphasis added). The effect of this is to improve contrast of the mask at UV/DUV wavelengths. See, e.g., col. 5, lines 33-36 of Yan. Accordingly, Yan requires a top layer of a significant greater thickness to provide the high absorption and/or low reflection needed to improve contrast at UV/DUV wavelengths. As such, Applicant respectfully submits that the Office Action’s reliance on Murakami is improper because the proposed modification would render Yan unsatisfactory for its intended purpose. See MPEP § 2143.01(V) (“If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification”) (citation omitted).

Therefore, for at least the above reasons, the cited portions of the Dierichs, Yan, Murakami, or a reasonable combination thereof, fail to disclose, teach, or suggest each and every feature recited by independent claims 1 and 20. Claims 2-6, 8-13, 15-19 and 58-62 depend from claim 1; and claims 21-25, 27-32 34-38 depend from 20; and are patentable for at least the same reasons provided above related to claims 1 and 20 and for the additional features recited therein. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 1-6, 8-13, 15-25, 27-32, 34-38 and 58-62 over Dierichs in view of Yan and further in view of Murakami should be withdrawn and the claim be allowed.

Claims 14 and 33 were rejected under under 35 U.S.C. § 103(a) as being unpatentable over Dierichs in view of Yan and further in view of Murakami, as applied to claims 1-13, 15-32, 34-38 and 58-62, and further in view of U.S. Patent Application Publication No. 2005/0040413 to Takahashi et al. (“Takahashi”). Applicant traverses this rejection for at least the following reasons.

As discusses above, the cited portions of Dierichs, Yan and Murakami fail to disclose, teach, or suggest each and every element of claims 1 and 20.

Further, Applicant submits that the cited portions of Takahashi to do not overcome the shortcomings of Dierichs, Yan and Murakami. For example, Applicant submits that the cited

portions of Takahashi fail to disclose, teach or suggest an aluminium coating with a protective top coating having a thickness of about 0.1 to about 5 nm.

Therefore, for at least the above reasons, the cited portions of the Dierichs, Yan, Murakami, Takahashi or a reasonable combination thereof, fail to disclose, teach, or suggest each and every feature recited by independent claims 1 and 20. Claim 14 depends from claim 1, and claims 33 depends from claim 20; and are patentable for at least the same reasons provided above related to claims 1 and 20 and for the additional features recited therein. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claim 14 and 33 over Dierichs in view of Yan and further in view of Murakami and further in view of Takahashi should be withdrawn and the claim be allowed.

Claims 39-44, 46-51 and 53-57 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yan in view of Murakami. Applicant traverses this rejection for at least the following reasons.

Applicant submits that the cited portions of Yan fail to disclose, teach or suggest a patterning structure comprising, *inter alia*, an aluminium coating with a protective top coating having a thickness of about 0.1 to about 5 nm, as recited in claim 39 and similarly, fail to disclose, teach or suggest a method of forming a patterning structure for use in a lithographic apparatus, the method comprising, *inter alia*, forming a protective coating having a thickness of about 0.1 to about 5 nm on top of the aluminium absorber, as recited in claim 55.

Moreover, Applicant submits that the cited portions of Murakami do not overcome the shortcomings of Yan. Applicant submits that the top layer of Yan and the protective coating of Murakami are for fundamentally different purposes. For example, Murakami discloses that “[t]he protective layer exhibits reflective behavior in the same manner as a first layer, and ***thus imparts no reflectivity decrease to the optical element*** compared to otherwise similar optical elements that lack a protective layer.” Paragraph [0022] of Murakami (emphasis added). This is in complete contradiction of Yan, which discloses that the top layer is designed to have a higher absorbance and/or ***lower reflectivity than the absorber layer***. See col. 3, lines 27-32 of Yan (emphasis added). The effect of this is to improve contrast of the mask at UV/DUV wavelengths. See, e.g., col. 5, lines 33-36 of Yan. Accordingly, Yan requires a top layer of a significant greater thickness to provide the high absorption and/or low reflection needed to improve contrast at UV/DUV wavelengths. As such, Applicant

respectfully submits that the Office Action's reliance on Murakami is improper because the proposed modification would render Yan unsatisfactory for its intended purpose. *See* MPEP § 2143.01(V) ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification") (citation omitted).

Therefore, for at least the above reasons, the cited portions of the Yan, Murakami, or a reasonable combination thereof, fail to disclose, teach, or suggest each and every feature recited by independent claims 39 and 55. Claims 40-44, 46-51, 53 and 54 depend from claim 39; and claims 56 and 57 depend from claim 55; and are patentable for at least the same reasons provided above related to claims 39 and 55 and for the additional features recited therein. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 39-44, 46-51 and 53-57 over Yan in view of Murakami should be withdrawn and the claim be allowed.

Claim 52 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yan in view of Murakami, as applied to claims 39-44, 46-51 and 53-57, and further in view of Takahashi. Applicant traverses this rejection for at least the following reasons.

As discussed above, the cited portions of Yan and Murakami fail to disclose, teach, or suggest each and every element of claim 39.

Further, Applicant submits that the cited portions of Takahashi do not overcome the shortcomings of Yan and Murakami. For example, Applicant submits that the cited portions of Takahashi fail to disclose, teach or suggest an aluminium coating with a protective top coating having a thickness of about 0.1 to about 5 nm.

Therefore, for at least the above reasons, the cited portions of the Yan, Murakami, Takahashi or a reasonable combination thereof, fail to disclose, teach, or suggest each and every feature recited by independent claim 39. Claim 52 depends respectively from claim 39 and is patentable for at least the same reasons provided above related to claim 39 and for the additional features recited therein. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. §103(a) of claims 52 over Yan in view of Murakami and further in view of Takahashi should be withdrawn and the claim be allowed.

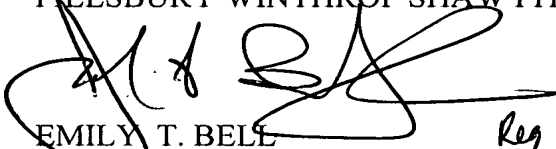
All matters having been addressed and in view of the foregoing, Applicant respectfully requests the Examiner's reconsideration of this application, and the immediate allowance of all pending claims.

Applicant's Counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the Undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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